TCT-113

Clinical and Left Ventricular Functional Outcomes Associated with Cardiac Biomarker Elevation after Transfemoral TAVR: A Sub-analysis from the PARTNER Trial

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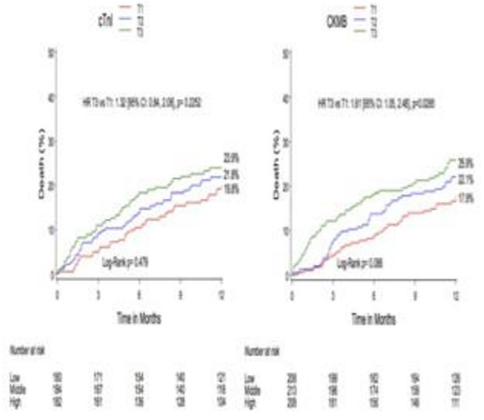
Background: Recent studies have demonstrated a possible association between myocardial injury after transfemoral (TF) TAVR and (1) adverse clinical events, and (2) a decreased improvement in left ventricular ejection fraction (LVEF).
Methods: Patients (pts) from the PARTNER trial (randomized and continued access cohorts) treated with TF-TAVR who had baseline and 24h cardiac marker values (cardiac troponin I [cTnI] and/or creatine kinase-MB [CKMB]) were included in the analysis. Pts were divided into tertiles (T1, T2, T3) based on the difference between the 24h and the baseline values of each cardiac marker (ΔcTnI and ΔCKMB). Clinical and echocardiographic outcomes were compared between tertiles.
Results: A total of 546 pts were included in the ΔcTnI analysis (T1 [-3.76 to 0.29 ng/mL])=180, T2 [0.30 to 0.85 ng/mL]=184, T3 [0.88 to 57.96 ng/mL])=182), while 629 pts comprised the ΔCKMB analysis (T1 [-80.0 to 0.8 U/L]=208, T2 [0.9 to 2.9 U/L]=213, T3 [3.0 to 85.9 U/L]=208). At 30 days, patients in the highest tertile (T3) of cardiac biomarker elevation, as compared with patients in the lowest tertile (T1), had a statistically higher rate of all-cause mortality (ΔcTnI: T3: 5.5% vs T1: 0.6%, p=0.006; ΔCKMB: T3: 5.8% vs T1: 1.0%, p=0.007) and cardiovascular mortality (ΔcTnI: T3: 5.0% vs T1: 0.6%, p=0.011; ΔCKMB: T3: 3.9% vs T1: 0.5%, p=0.018). The 30-day rates of myocardial infarction were similar across the tertiles for both markers (ΔcTnI: p=0.3240, ΔCKMB: p=0.3594). At 1 year, only the highest CKMB tertile was statistically associated with higher all-cause mortality (ΔcTnI: T3: 23.9% vs T1: 19.8%, p=0.225; ΔCKMB: T3: 25.9% vs T1: 17.9%, p=0.029) (figure1) and higher cardiovascular mortality (ΔcTnI: T3: 18.8% vs T1: 12.3%, p=0.859; ΔCKMB: T3: 17.1% vs T1: 10.2%, p=0.029). After multivariable analysis, the highest tertiles of cardiac biomarker elevations remained independent predictors of 30-day and 1 year all-cause mortality. The degree of myocardial injury did not influence the improvement of NYHA class (ΔcTnI: p=0.1971, ΔCKMB: p=0.2149) or LVEF(ΔcTnI: p=0.7187, ΔCKMB: p=0.8298) at 1 year.



Conclusions: In pts who underwent TF-TAVR in the PARTNER trial, highest cardiac enzyme elevations were associated with higher 30-day (cTnI and CKMB) and 1-year all-cause and cardiovascular mortality (CKMB) rates. The degree of myocardial injury had no impact on improvement of the NYHA class or recovery of LVEF.

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Impact of Left Ventricular Function on Outcomes of Transcatheter Aortic Valve Replacement and Medical Therapy in Inoperable Patients with Aortic Stenosis: Insights from the Placement of Aortic Transcatheter Valves (PARTNER) Trial (Cohort B)

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Background: The PARTNER trial demonstrated superior survival with transcatheter aortic valve replacement (TAVR) compared to standard therapy (ST) in inoperable patients with symptomatic, severe aortic stenosis (AS). We sought to evaluate the effect of left ventricular (LV) dysfunction on clinical outcomes and the impact of management approach on LV functional recovery.
Methods: The PARTNER trial cohort B randomized inoperable patients with severe AS to TAVR or ST. Patients were stratified by the presence of LV ejection fraction (LVEF) <50%. Improvement in LVEF was defined as an ≥10% absolute improvement in LVEF at 30-days.
Results: Left ventricular dysfunction was present in 118 patients (59 TAVR and 59 ST patients). Baseline LV dysfunction was associated with an increased risk of cardiac mortality at 1-year with ST (HR=1.71 [95% CI 1.08, 2.71]; P=0.02) but not with TAVR. TAVR was associated with survival advantage regardless of baseline LVEF. Improvement in LVEF occurred in 48.7% and 31.0% of TAVR and ST patients, respectively (P=0.16). Smaller LV diastolic dimensions and higher aortic valve gradients were associated with increased likelihood of LVEF improvement during ST which in turn was associated with markedly reduced all-cause mortality rates (HR=0.32 [95% CI 0.11, 0.93]; P=0.03). Improvement in LVEF did not impact outcomes after TAVR. All-cause mortality at 1-year was similar in those with LVEF improvement during ST and after TAVR (28.6 vs 31.6%; P=0.84).
Conclusions: In inoperable patients with severe AS, TAVR is associated with improved survival regardless of baseline LVEF and should be considered the standard of care for inoperable patients with symptomatic severe AS and LV dysfunction. Improvement in LVEF during ST portends favorable survival that is similar to that seen after TAVR in inoperable patients.

TCT-115

Predictors and Clinical Consequences of Permanent Pacemaker Implantation after TAVR in the PARTNER Experience

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Background: Permanent pacemaker implantation (PPI) is frequently required after transcatheter aortic valve replacement (TAVR), but limited data is available regarding predictors and clinical consequences.
Methods: Patients without prior PPI who underwent TAVR in the PARTNER Trial and randomized continued access registry were included in this analysis. Multivariable analysis was performed to identify clinical, EKG, and echocardiographic (Echo) predictors of PPI after TAVR. Clinical and Echo outcomes were compared between patients with and without PPI within 30 days of TAVR.

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